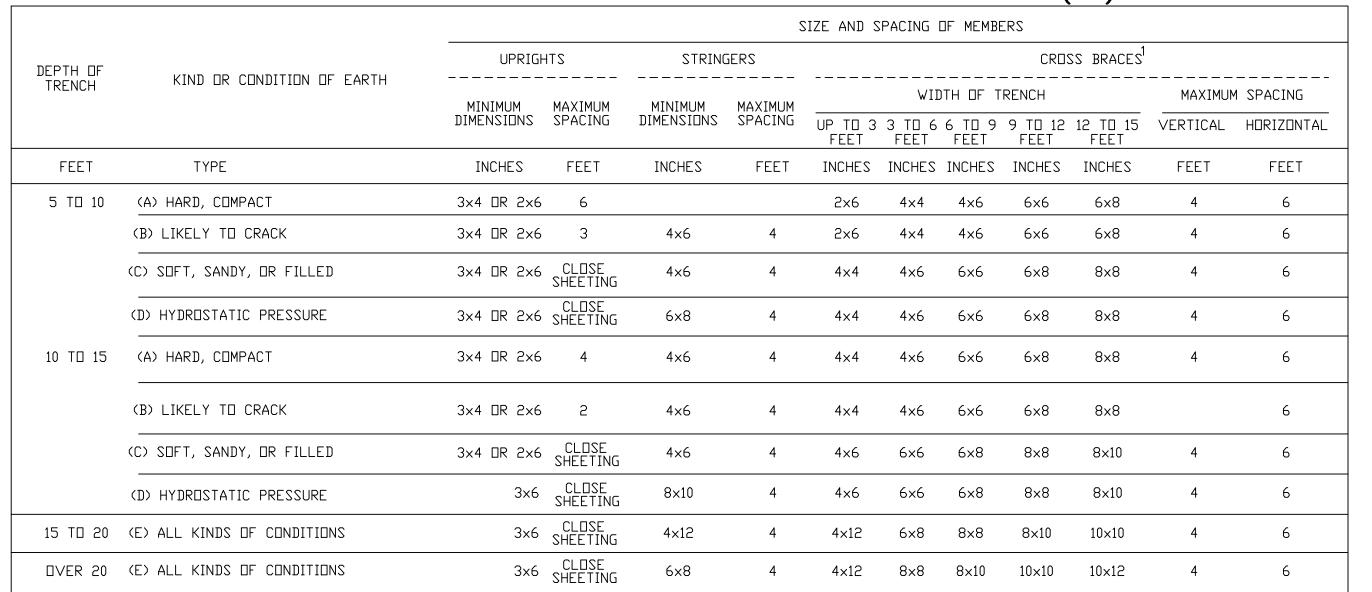
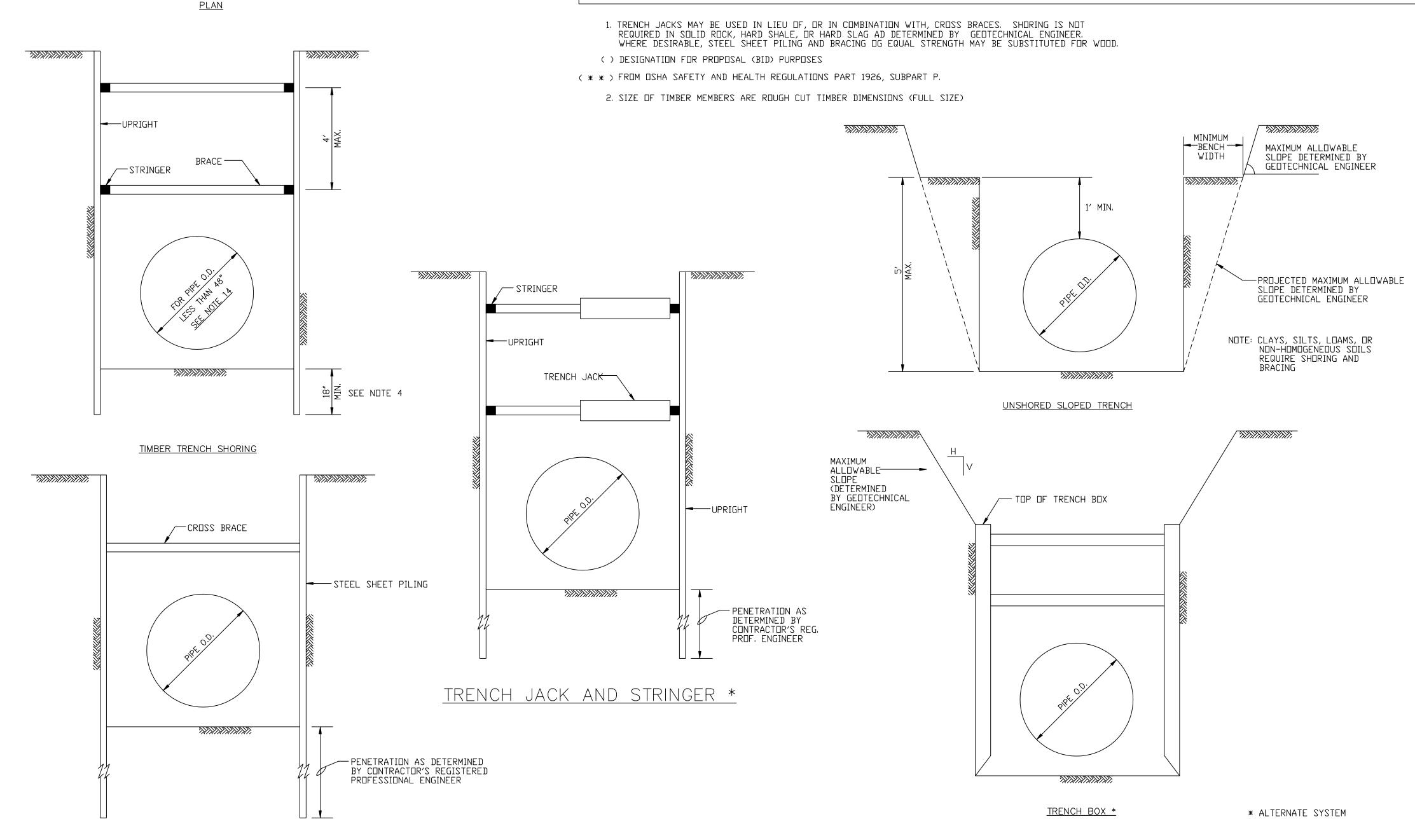
TRENCH SHORING - MINIMUM REQUIREMENTS (**)





SPACING

CLOSE SHEETING

___ DPEN SHEETING

----- BRACE

__ STRINGER

-UPRIGHT

STEEL PILING *

TRENCH SAFETY SYSTEM DETAILS

N.T.S.

<u>GENERAL NOTES</u>

- 1. TRENCH SAFETY SYSTEM TO MEET, AS A MINIMUM, THE REQUIREMENTS OF OSHA SAFETY AND HEALTH REGULATIONS PART 1926, SUBPART P AND Q.
- 2. THE CONTRACTOR MAY ELECT TO USE AN ALTERNATE SYSTEM TO THE TIMBER TRENCH SHORING SHOWN IN THE TABLE. THE ALTERNATE SYSTEM, BE IT A TRENCH BOX, STEEL SHEET PILING, TRENCH JACKS OR A COMBINATION OF THE ABOVE, MUST BE CERTIFIED BY THE CONTRACTOR'S REGISTERED PROFESSIONAL ENGINEER THAT IT PROVIDES EQUAL OR GREATER PROTECTION THAN THE TIMBER TRENCH SHORING SHOWN ON THIS DETAIL SHEET.
- 3. CONTRACTOR SHALL PERFORM DAILY TRENCH SAFETY SYSTEM INSPECTIONS TO INSURE THAT THE SYSTEM MEETS OSHA REQUIREMENTS AND IS APPROPRIATE FOR SPECIFIC SITE CONDITIONS OF THE OPEN TRENCH, INSPECTIONS ARE REQUIRED AFTER RAINSTORMS OR ANY CHANGE IN CONDITIONS THAT MAY INCREASE THE POSSIBILITY OF A CAVE-IN OR SLIDE.
- 4. IN THE EVENT THAT TRENCH UPRIGHTS CAN NOT BE PLACED BELOW TRENCH BOTTOM AS SHOWN ON DETAIL, CONTRACTOR MUST PROVIDE ENGINEER WITH PLANS THAT DEMONSTRATE THAT THE UPRIGHTS WILL BE BRACED AND MAINTAINED IN A VERTICAL POSITION.
- 5. WHERE THE TRENCH SAFETY SYSTEM CROSSES A UTILITY, THE UTILITY LINE MUST BE ADEQUATELY SUPPORTED TO PREVENT ANY DAMAGE. IN ADDITION, IN TRENCHES WITH CLOSED SHEETING, THE UPRIGHTS MUST SURROUND THE UTILITY. OPEN TRENCH SHEETING SPACING MUST BE ADJUSTED AS TO NOT EXCEED THE MAXIMUM ALLOWED SPACING. (NO SEPARATE PAY)
- 6. TRENCH SHALL BE DRAINED AS REQUIRED SO WORK MAY BE ACCOMPLISHED SAFELY AND EFFICIENTLY. IF NECESSARY, INSTALL DEWATERING SYSTEM TO PROVIDE A DRY TRENCH BOTTOM. DELIVER DISCHARGE FROM SYSTEM TO NATURAL DRAINAGE CHANNEL OR TO STORM DRAINS.
- 7. IN TRENCHES FOUR FOOT DEEP OR MORE, CONTRACTOR TO PROVIDE ADEQUATE MEANS OF TRENCH EXIT SUCH AS LADDER OR STEPS AND THEY MUST BE LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
- 8. MEASURE "PERMANENT TIMBER TRENCH SHORING" BY LINEAR FOOT OF TRENCH PROTECTED. PAYMENT IS BY STATED SAME LINEAR FEET OF TRENCH PROTECTED EARTH CONDITIONS NOTED IN THE PROPOSAL (BID).
- 9. STRINGERS AND BRACES TO BE SECURELY FASTENED.
- 10. TRENCH SHORING SYSTEM HAS BEEN DESIGNED WITH NO ALLOWANCE FOR LIVE LOAD SURCHARGE. IF LIVE LOAD SURCHARGE IS ANTICIPATED IT SHALL NOT BE PLACED WITHIN 2 FEET OF EDGE OF TRENCH AND CONTRACTOR'S REGISTERED PROFESSIONAL ENGINEER SHALL DESIGN TRENCH SHORING SYSTEM TO ACCOMMODATE THE ANTICIPATED LIVE LOAD SURCHARGE.
- 11. TIMBER SIZES ARE BASED ON STRESSES OF 1650 PSI FOR EXTREME FIBER IN BENDING AND 1450 PSI FOR COMPRESSION PARALLEL WITH GRAIN.
- 12. EARTH TRENCH CONDITIONS FOR THIS PROJECT ARE ANTICIPATED TO BE AS SHOWN IN THE GEOTECHNICAL REPORT AVAILABLE FROM ENGINEER.
- 13. TIMBER TRENCH SHORING TABLE SHOWN ON THIS DEATIL SHEET IS GOOD FOR PIPES WITH O.D. OF UP TO 48 INCHES. THE DESIGN ENGINEER SHALL PROVIDE SEPARATE DESIGN FOR PIPE WITH O.D. LARGER THAN 48 INCHES.
- 16. SLOPES FOR EXCAVATIONS SHALL BE AS FOLLOWS:
 A) SOLID ROCK, SHALE OR CEMENTED SAND & GRAVELS = 90°
- B) COMPACTED ANGULAR GRAVELS = 1/2 : 1
- C) RECOMMENDED SLOPE FOR AVERAGE SOLIDS = 1 : 1
 D) COMPACTED SHARP SAND = 1 1/2 : 1
- E) WELL ROUNDED LOOSE SAND = 2 : 1
- 16. CLAYS, SILTS, LOAMS OR NON-HOMOGENOUS SOILS
- REQUIRE SHORING AND BRACING. THE PRESENCE OF GROUND WATER REQUIRES SPECIAL TREATMENT.



TRENCH SAFETY DETAILS

DWN: JR

APP'D: RS

Scale: N.T.S. Date:

MAY, 2007
Project No.:
NONE
SHEET:

OF